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MISCELLANEOUS.

53. Proposed by J. A. CALDERHEAD, M. Sc., Professor of Mathematics in Curry University, Pittsburg, Pennsylvania.

(a). What is the highest north latitude in which the sun will shine in at the north window of a building at least once in a year?

(b). How many days will it shine in at the north window of a building in latitude 41° N.?

54. Proposed by S. HART WRIGHT, M. D., A. M., Ph. D., Penn Yan, New York.

On latitude 40° N. $\equiv \gamma$, when the moon's declination is $5^{\circ} 23'$ N. $\equiv \delta$, and the sun's $9^{\circ} 52'$ S. $\equiv -\delta$, how long after sunset, will the two horns or cusps of the moon's crescent (recently new) set at the same moment, the crescent with its back *down* having touched the horizon first? Semi-diameters, refraction, and parallax not considered.

55. Proposed by J. M. COLAW, A. M., Monterey, Virginia.

Multiply 6 by 4. Is the problem legitimate when both symbols represent pure number?

[NOTE. "A measured or numbered quantity may be divided into a number of parts, or taken a number of times; but no number can be multiplied or divided into parts."—*McLellan and Dewey's Psychology of Number*. "The astounding thesis is maintained that number is not a magnitude, does not possess quantity at all, and that 'no number can be multiplied or divided into parts'."—*Lefevre's Number and Its Algebra*.]

 BOOKS.

Theory of Discrete Manifolds. By F. W. Franklin. Pamphlet, 12 pages. Published by the Author.

Recent Books on Quaternions (from "Science," Vol. V, pages 699—701). By Dr. Alexander Macfarlane.

This is a concise criticism on the following works: *Theorie der Quaternionen*, Von Dr. P. Molenbroke; *Anwendung der Quaternionen auf die Geometrie*, by same author; *The Outlines of Quaternions*, by Lieut. Col. H. W. L. Hime; *A Primer of Quaternions*, by A. S. Hathaway; and *Utility of Quaternions in Physics*, by A. McAulay. B. F. F.

Application of Hyperbolic Analysis to the Discharge of a Condenser. By Dr. Alexander Macfarlane. Pamphlet, 16 pages.

A paper presented at the annual meeting of the American Institute of Electrical Engineers, May 18th, 1897. B. F. F.

Introduction to American Literature, including Illustrative Selections with Notes. By F. V. N. Painter, A. M., D. D., Professor of Modern Languages in Roanoke College, Author of a History of Education, Introduction to English Literature, etc. 8vo. Cloth, 498 pages. Boston: Leach, Shewell and Sanborn.

This is the best prepared work on American Literature with which we are acquainted. Only the very best productions from the best authors are selected. The selections for special notice, which are chosen to illustrate the distinguishing characteristics of each author are supplied with explanatory notes. The short sketch of our leading writers is written in an intensely interesting manner, all the kernels having been preserved and all the chaff thrown away. Each sketch is preceded by an excellent portrait. B. F. F.